

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

**PERSONALIZED MEDIA  
COMMUNICATIONS, LLC,**

**Plaintiff,**

**vs.**

**APPLE, INC.,**

**Defendant.**

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**Case No. 2:15-cv-01366-JRG-RSP**

**Jury Trial Demanded**

**FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Personalized Media Communications, LLC (“PMC” or “Plaintiff”), by and through its attorneys, hereby demands a jury trial and complains of Defendant Apple, Inc. (“Apple” or “Defendant”) as follows:

**NATURE OF THE ACTION**

1. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 271, *et seq.*, to enjoin infringement and obtain damages resulting from Apple’s unauthorized manufacture, use, sale, offer to sell and/or importation into the United States for subsequent use or sale of products, methods, processes, services and/or systems that infringe one or more claims of United States Patent No. 8,191,091 (the “’091 Patent”) (attached as Exhibit A) entitled “Signal Processing Apparatus and Methods,” United States Patent No. 8,559,635 (the “’635 Patent”) (attached as Exhibit B) entitled “Signal Processing Apparatus and Methods,” United States Patent No. 7,752,649 (the “’649 Patent”) (attached as Exhibit C) entitled “Signal Processing Apparatus and Methods,” and United States Patent No. 8,752,088 (the “’088 Patent”) (attached as Exhibit D) entitled “Signal Processing Apparatus and Methods.” PMC seeks injunctive relief to prevent Defendant from continuing to

infringe PMC's patents. In addition, PMC seeks a recovery of monetary damages resulting from Defendant's past infringement of these patents.

2. This action for patent infringement involves Defendant's manufacture, use, sale, offer for sale, and/or importation into the United States of infringing digital rights management (DRM) technology, including, but not limited to, DRM technology known as FairPlay, which is used at least by Defendant's QuickTime and iTunes/App Store/Apple Music multimedia software which software in turn is used by, for example, Defendant's iPhone, iPad, iPod, MacOS X devices, Apple TV, iTunes Store, App Store and iBooks (collectively, "Client Devices") in connection with Defendant's distribution of encrypted digital content, including but not limited to, software ("apps"), iBooks, audio books, TV programs, movies and music, and other content (collectively, "Content") to authorized user devices. For example, FairPlay-encrypted content may be purchased through Defendant's iTunes Store or App Store, using Defendant's software, including but not limited to, the iTunes, App Store, and Apple Music applications. The iTunes software, App Store software, Apple Music, and Defendant's QuickTime multimedia software utilize built-in FairPlay DRM technology to decrypt and play or store the encrypted files. This action for patent infringement also involves Defendant's manufacture, use, sale, offer for sale, and/or importation into the United States of infringing technology that enables the streaming and/or download of video and other forms of Content to Client Devices. Collectively, the unauthorized infringement set forth here and elsewhere is referred to as the "Accused Products and Services."

### **THE PARTIES**

3. PMC is a limited liability company duly organized and existing under the laws of the State of Texas, with its principal place of business in Sugar Land, Texas.

4. Defendant is a California corporation with its principal place of business at 1 Infinite Loop, Cupertino, CA 95014. Defendant has designated CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201 as its registered agent for service of process.

#### **JURISDICTION AND VENUE**

5. This Court has jurisdiction over the subject matter of this patent infringement action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. Defendant is subject to personal jurisdiction in this judicial district and division because it regularly transacts business in this judicial district and division by, among other things, selling and offering for sale its products and services, including the Accused Products and Services, to customers located in this judicial district and division. In addition, Defendant has committed acts of direct infringement, contributory infringement and/or inducement of infringement, of one or more of the claims of the patents-in-suit in this judicial district and division.

7. Venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b), (c) and 1400(b) because Defendant is subject to personal jurisdiction in this district, conducts business in this district, has committed acts of patent infringement in this district, and has induced and/or contributed to acts of patent infringement in this district.

8. By way of example, and without limitation, Defendant is registered to do business in the State of Texas and lists CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, TX 75201 as its registered agent for service of process.

9. Further, by way of example, and without limitation, in June 2014, Defendant opened the first phase of its expanded Americas Operations Center in Austin, TX, within the

subpoena power of the Eastern District of Texas. Apple already has a substantial presence in Austin.

10. As part of its new Economic Development Agreement with Austin, Apple will be investing roughly \$300M to expand the America's Operations Center in exchange for tax breaks and other benefits.

11. The company has announced its intention to hire 3600 new employees for its Austin Operations Center, which will double Defendant's current Texas-based workforce and make its Texas facilities one of Apple's largest bases of operations. (*See Exhibit E at 1.*)

12. Upon information and belief, Defendant conducts operation support activities related to the Accused Products and Services at its Texas facilities.

13. Further, by way of example, and without limitation, Defendant currently operates, and has operated since 2010, a microchip design center in Austin, TX. (*Exhibit E at 1.*)

14. By way of example, and without limitation, the Accused Products and Services are used, offered for sale and sold at numerous retail locations throughout this judicial district including, for example, at Best Buy stores in Longview, Tyler, and Texarkana. (*See Exhibit F.*)

15. Apple's web site promotes its products and services as being available at Verizon Wireless in Marshall, as well as at Verizon Wireless, AT&T, and Target in Longview, and other locations in this judicial district. (*See Exhibit G.*)

16. Defendant has purposefully availed itself of the privilege of conducting business within the State of Texas, which activities, upon information and belief, infringe one or more claims of PMC's patents in suit, causing injury in this judicial district.

## **PATENTS-IN-SUIT**

17. On May 29, 2012, United States Patent No. 8,191,091 (the '091 Patent) was duly and legally issued for an invention entitled "Signal Processing Apparatus and Methods."

18. On October 15, 2013, United States Patent No. 8,559,635 (the '635 Patent) was duly and legally issued for an invention entitled "Signal Processing Apparatus and Methods."

19. On July 6, 2010, United States Patent No. 7,752,649 (the '649 Patent) was duly and legally issued for an invention entitled "Signal Processing Apparatus and Methods."

20. On June 10, 2014, United States Patent No. 8,752,088 (the '088 Patent) was duly and legally issued for an invention entitled "Signal Processing Apparatus and Methods."

21. PMC owns all right, title, and interest in and to the '091, '635, '649, and '088 patents (collectively, the "patents-in-suit") and possesses all rights of recovery.

## **FACTUAL BACKGROUND**

### **The Company**

22. PMC is a family-run company that was founded by inventor John Harvey. PMC's Chairman, along with his co-inventor James Cuddihy, made in the early 1980's numerous inventions (collectively referred to hereinafter as "the Harvey Inventions") which have been the basis for nearly 100 patents.

23. PMC is operated out of Sugar Land, Texas, and its intellectual property commercialization and licensing activities have created jobs, including the employment of a number of engineers and technical specialists, as well as management and counsel.

24. PMC owns a ground-breaking portfolio of intellectual property that covers, among other things, the use of control and information signals in electronic media content to process the content and generate output that is personalized and relevant to a user and the

application of novel content protection techniques to protect against piracy. PMC's patents also disclose and claim apparatus and processes that allow for content to be transmitted by a content provider in a highly flexible manner where the content and control signals can be varied in their timing, location, and/or composition.

25. PMC attempted to commercialize the technology of the Harvey Inventions through internal development. For example, between 1989 and 1992 the company developed and publicly disclosed a prototype that demonstrated, using television as a model, many of the personalization concepts and access control concepts of PMC's patented technology.

26. The company also sought to partner with established companies to realize the vision of the patents by jointly developing, marketing, and manufacturing commercial embodiments of the PMC technology. In the 1990's, PMC and its predecessor, Personalized Mass Media Corporation, made multiple attempts to market the Harvey Inventions by contacting a number of large technology companies. The company entered into agreements with industry leaders, including General Electric, to explore the possibilities of the technology, and also contracted with Sarnoff Labs to develop software implementing features of the Harvey Inventions and demonstrating the potential of the technology.

27. Most of these established firms eventually declined to pursue the Harvey Inventions. They either did not fully understand the technology or did not believe that it could be developed into a business, let alone an entire industry, at that point in time. A few firms, however, including Starsight and Gemstar, eventually became some of the first licensees to PMC's patent portfolio.

28. Since those early years, the Harvey Inventions have received significant industry recognition, including being licensed by some of the most respected companies in the world.

Numerous media and telecommunications companies use PMC's technology including providers of electronic media content that is personalized and relevant to a particular user, providers of devices to deliver that content to users, and providers of the networks that deliver the content. Current licensees of PMC's patented technology include Sony, Motorola, Sharp, Panasonic, DirecTV, DISH Network, EchoStar, The Weather Channel, Gemstar-TV Guide, and Arris, among others.

29. Over the years, PMC has consistently pursued a license-first approach to commercializing its intellectual property. Litigation is considered a last resort to be employed only after it is apparent that a commercially reasonable license is unobtainable. Indeed, the present action against Apple was commenced only after a lengthy series of licensing discussions failed to produce a commercially reasonable licensing offer.

30. PMC has only litigated its own patents. PMC has never sought to litigate or otherwise enforce a patent purchased from a third party. The patented inventions that PMC seeks to enforce in this case, and in every other case PMC has been forced to initiate, are the fruits of the PMC's inventors, John Harvey and James Cuddihy.

31. Indeed, PMC has been involved in only seven litigations in its twenty year licensing program. Simply put, suing numerous companies for small amounts is not and has never been PMC's business model.

### **The Patents**

32. PMC has received professional acclaim for its patented technology, i.e., the Harvey Inventions. For example, in 2011, Ocean Tomo, LLC issued its *Ocean Tomo Quality Inventor Study* which assessed patent quality and relative value associated with patent portfolios in various technology sectors. With respect to PMC's patents, the Ocean Tomo study found

that “[i]n Wireless, the top rated inventor with 16 patents [at that time] is [PMC’s] John Harvey.” The study further concluded that PMC’s patents are “in the top 0.1% of the appropriate 220,000 active U.S. utility patents granted in 2010.” The patents-in-suit here are part of the same patent family.

33. The PMC portfolio is primarily based on two seminal filings, a first application filed on November 3, 1981, and assigned Application Serial Number 06/317,510 (hereinafter, the “1981 Specification”), and a follow-on continuation-in-part application filed on September 11, 1987, which was assigned Application Serial Number 07/96,096 (hereinafter, the “1987 Specification.” For ease of reference, the 1981 Specification shall be cited using the patent that issued therefrom, United States Patent No. 4,694,490 (the “490 Patent”) (attached as Exhibit H). The 1987 Specification shall be referenced using the ’635 Patent (Exhibit B).

34. The Harvey Inventions were developed to overcome the limitations and drawbacks of digital computing devices (e.g., early personal computers, minicomputers, and microcomputers) and communications technologies for the delivery of content to consumers (e.g., analog cable TV systems, over-the-air TV, AM/FM radio, etc.). Content delivery technology of the day was typically delivered through some form of a networked system of computing devices. For example, many of these systems were networks that included content providers (delivering programming content to distributors), content distributors (delivering content to consumers), and consumer receiver devices (outputting content to consumers). The challenges addressed by the Harvey Inventions were thus rooted in networked systems for the delivery of content.

35. The Harvey Inventions sought to unlock the potential of computing devices and content delivery networks so as to deliver more enriching media content to consumers in ways



never contemplated. The Harvey Inventions sought to establish new paradigms of how content could be delivered, what it looked like, how it was experienced on an individual basis, and how it was experienced as part of a shared experience.

36. As explained in the specifications, the Harvey Inventions sought to provide receiver stations capable of receiving and delivering content in a more flexible, secure and/or personalized manner. Indeed, at the time of the inventions, the inventors recognized that “great potential exists for a significant increase in the scope and scale of multi-media and multi-channel presentations” in networked systems. ’490 Patent (Exhibit H) at col. 1, lines 23-25. The inventors expressed that “[t]his increase is desirable because it will increase variety and add substantially to the richness of presentations as regards both entertainment and the communications of ideas and information.” *Id.* at col. 1, lines 25-28; *see also* ’635 Patent (Exhibit B) at col. 1, lines 57-60 (“Today great potential exists for combining the capacity of broadcast communications media to convey ideas with the capacity of computers to process and output user specific information.”).

37. Based on their observations about the state of computing devices and networked content delivery systems as set forth in the specification, the inventors made inventions to address problems and challenges presented by those technologies. For example, the layered signal decryption technology claimed in the ’091 and ’635 patents—which allows encrypted content to be transmitted along with encrypted digital control signals and requires decryption of the digital control signals first in order to unlock the encrypted content—was initially devised to inhibit piracy of TV content delivered in a cable, satellite, or other networked system. Similarly, the control signal processing methods and apparatuses claimed in the ’649 and ’088

patents were developed specifically to take advantage of the networking and data processing capabilities of a computer-implemented receiver station.

38. At the time of the invention, the secure delivery of programming content along with related control signals to control or enable specific signal processing operations at remote receiver stations was a technical challenge particular to a distributed computing environment such as a cable television network. And, the technical solutions the inventors developed and patented were novel and unconventional at the time. Rather than relying on generic computers for routine computing tasks, these Harvey Inventions require specialized equipment and/or special software programs to implement various concrete functions, such as receiving an incoming transmission, filtering or selecting signals or content from the transmission, and/or applying decryption or other procedure(s). None of those functions could be fairly characterized as a mere algorithm or mental steps since they all rely on hardware implementation at the least.

39. The Harvey specifications disclose methods and modes of communication of content unprecedented in their inventiveness. For example, the 1987 Specification discloses technology for “personalized television” where millions of Americans can watch content such as the “Wall Street Week” show—a shared experience—where the presentation for each consumer has been enriched through the delivery of supplemental content such as graphical overlays of the performance of each consumer’s stock portfolio for the week—the shared experience is now also a personalized experience. ’635 Patent (Exhibit B) at col. 10, line 40 – col. 15, line 12; FIGs. 1, 1A-1C. The Harvey specifications disclose concrete, highly technical apparatus and methods for creating and delivering personalized television content and other forms of personalized media content.

40. The Harvey specifications disclose apparatus and methods for interactive content delivery never previously contemplated. For example, the 1987 Specification discloses that a consumer might be viewing a cooking program called “The Exotic Meals of India”. *Id.* at col. 240, line 59 – col. 245, line 30. If the viewer wants the recipe, he/she presses buttons on the remote control. That causes the receiver station to execute a computer program found in the content transmission that produces a recipe that has been tailored to the size and dietary needs of the viewer’s family using data stored in the viewer’s personal computer. *Id.* The apparatus and methods in the specification thus disclose embodiments for delivering not just personalized media content, but the interactive delivery of personalized media content. *Id.* at FIG. 7F.

41. Figure 2 of the 1987 Specification discloses a specialized Signal Processor 26 adapted to deliver personalized video, personalized audio, and other unprecedented modes and types of content to consumers. Signal processor 26 detects digital signals found in conventional TV signals, radio, digital television transmissions, and/or other transmissions from remote content providers, decrypts the digital signals if they are encrypted, assembles detected digital signals into message units, and sends those messages to other devices or stores them for later transmission to remote sites. *Id.* at FIG. 2; *see* ’490 Patent (Exhibit H) at FIG. 1. The signal processor is even capable of detecting digital signals that are varying in their location, timing, and/or composition in the digital transmission that is received. ’635 Patent (Exhibit B) at col. 15, line 13 - col. 18, line 29. The signal processor can then arrange those detected digital signals into messages. *Id.*

42. Figures 2E-2K of the 1987 Specification and the accompanying text describe a signal processor and receiver apparatus and methods for processing messages having both fixed and variable formats. The messaging format is highly flexible. This permits messages to be

transmitted that implement a variety of operations, such as: direct commands, conditional commands, computer programs to be executed, information content to be output, and so on. *See* '635 Patent (Exhibit B) at col. 21, line 30 – col. 35, line 39. These apparatus and methods for distributed processing and control between content transmission devices and receiver devices are solutions to problems rooted in modern networked communication systems.

43. In advanced embodiments of the “Wall Street Week” example, the program is delivered as a digital television signal that includes digital control/instruct signals such as decryption keys placed in the encrypted digital content transmission. '635 Patent (Exhibit B) at col. 143, line 55 – col. 161, line 21; FIG. 4. Figure 4 and the accompanying narrative disclose a highly sophisticated receiver station apparatus and methods for effectuating access control through key management in order to securely deliver digital television content: A digital key Ca carried with the digital audio of the program is extracted and used to decrypt the digital Wall Street Week audio at a decryptor using a decryption algorithm C with key Ca. *Id.* In this embodiment, the program’s video content has been doubly-encrypted: first, it is encrypted with a key Aa using an encryption algorithm A, and second, it is encrypted with a key Ba using an encryption algorithm B. Access control through special key management techniques protects the video content. A first-stage video decryption at the consumer’s receiver station is carried out after key Ba is selected by a processor computing a formula that reveals the location of Ba in memory. The second-stage video decryption is carried out by computing the value for decryption key Aa using a special formula and then applying that key using decryption algorithm A.

44. The digital television embodiment of “Wall Street Week” represents a remarkably advanced and sophisticated technological solution to the problems of content access control and

decryption key management at a time that was just the dawn of digital television. As a point of reference, the very first meetings for the Motion Pictures Experts Group (MPEG) that would ultimately lead to international standards for the formatting, decoding, and delivery of digital television did not take place until 1988. It was not until 1990 and later that drafts of the first MPEG standard were first publicly available.

### **The Accused Products & Services**

45. According to its own SEC filings, Defendant “designs, manufactures and markets mobile communication and media devices, personal computers and portable digital music players, and sells a variety of related software, services, accessories, networking solutions and third-party digital content and applications.” Apple Inc. Form 10-Q for the quarterly period ended June 27, 2015 at 23. (Excerpt attached as Exhibit I.)

46. Defendant’s “products and services include iPhone®, iPad®, Mac®, iPod®, Apple Watch™, Apple TV®, a portfolio of consumer and professional software applications, iOS, OS X® and watchOS™ operating systems, iCloud®, Apple Pay™ and a variety of accessory, service and support offerings . . . The Company [Defendant] also sells and delivers digital content and applications through the iTunes Store®, App Store™, Mac App Store, and iBooks Store™ (collectively “iTunes”). The Company [Defendant] sells its products worldwide through its retail stores, online stores and direct sales force, as well as through third-party cellular network carriers, wholesalers, retailers and value-added resellers.” *Id.*

47. “As part of its strategy, the Company [Defendant] continues to expand its platform for the discovery and delivery of digital content and applications through iTunes®, which allows customers to discover and download digital content, iOS, Mac and Apple Watch

applications, and books through either a Mac or Windows-based computer or through iPhone, iPad and iPod touch® devices (‘iOS devices’) and Apple Watch.” *Id.* at 24.

48. “The increase in net sales of Services in the third quarter and first nine months of 2015 compared to the same periods in 2014 was primarily due to growth from iTunes and licensing. iTunes generated a total of \$2.7 billion and \$8.1 billion in net sales during the third quarter and first nine months of 2015, respectively, compared to \$2.6 billion and \$7.6 billion during the third quarter and first nine months of 2014, respectively.” *Id.* at 27.

49. Defendant has been using a digital rights management (DRM) technology, including at least the DRM technology known as FairPlay, to control access to and the distribution of keys for a variety of encrypted digital content and software for distribution to its customers.

50. The FairPlay DRM technology is built into one or more of the iTunes application, App Store application, Apple Music application, and the QuickTime multimedia software application, and is used by the iPhone, iPod, iPad, Apple TV, iTunes Store, The App Store, Apple Music, and related software and services. A FairPlay-encrypted file, such as a piece of media content or software application, is digitally encrypted and can only be decrypted by an authorized user device based on user-specific and/or device-specific decryption information. The FairPlay DRM technology plays a critical role in Defendant’s sale and distribution of digital content and software applications and is essential to the commercial success of Defendant’s product ecosystem. Defendant has also been using and deploying to consumers infringing technology that enables the streaming and/or download of video and other forms of Content to Client Devices.

51. Defendant has had knowledge of PMC's patent portfolio that included the applications that led to the patents-in-suit. For example, between 2010 and 2014 PMC and Defendant conducted a series of discussions including in-person meetings with Apple personnel concerning PMC's patent portfolio and its applicability to several of Defendant's products and services, including FairPlay DRM. Over the course of these discussions, PMC provided Defendant with copies and/or lists of its issued patents and pending patent applications, prosecution file histories of some of its issued patents, and explanations of claim coverage including claims covering encryption/decryption methods and DRM technology, among other materials. Defendant had specific knowledge of the '649 Patent by 2011 based on these discussions.

52. PMC is being irreparably harmed by Defendant's infringement of its valuable patent rights. Moreover, Defendant's unauthorized, infringing use of PMC's patented processes is threatening the value of this intellectual property because Defendant's conduct results in Plaintiff's loss of its lawful patent rights to exclude others from making, using, selling, offering to sell and/or importing the patented inventions.

53. Defendant's disregard for PMC's property rights similarly threatens PMC's relationships with potential licensees of this intellectual property. The Defendant will derive a competitive advantage over any of PMC's future licensees from using PMC's patented technology without paying compensation for such use. Accordingly, unless and until Defendant's continued acts of infringement are enjoined, PMC will suffer further irreparable harm for which there is no adequate remedy at law.

**COUNT I**  
**INFRINGEMENT OF U.S. PATENT NO. 8,191,091**

54. Paragraphs 1-53 are incorporated by reference as if fully restated herein.

55. The normal operation of the Accused Products and Services results in the practice of the methods claimed in at least claims 13, 15-16, 18, 20, 21, 23-24, 26, 27, and 30 of the '091 Patent.

56. For example, claim 13 of the '091 Patent recites “a method of decrypting programming at a receiver station.” The receipt and decryption of a FairPlay-encrypted file by an Accused Product/Service practice every step of the claimed method.

57. Defendant's iTunes, App Store, Apple Music, and QuickTime software applications (installed on end users' MacOS or Windows computers) and Apple's iOS products (including iPhone, iPod, iPad, and Apple TV) implement the method of claim 13 to decrypt digital content on end users' computing or entertainment devices.

58. The digital content may include, for example, movies, television shows, e-books, audio books, music, and/or apps.

59. Each user device is a “receiver station” as claimed. A user device can receive FairPlay-protected digital content either from Defendant's iTunes Store and/or App Store or from another device.

60. On information and belief, a user device can also receive FairPlay-encrypted content from Defendant's iCloud.

61. Under the FairPlay DRM scheme, content delivered from Defendant's content server is encrypted with a master key which is in turn encrypted with a random user key corresponding to the user's Apple ID account.

62. Both the encrypted master key and the encrypted content are packaged in a container file and delivered in the form of “an encrypted digital information transmission including encrypted information,” as claimed in claim 13.



63. The user device, employing hardware and/or software supplied by Defendant, can recognize a FairPlay-encrypted piece of content and detect the presence of the encrypted master key as “an instruct-to-enable signal.”

64. On information and belief, this detection is necessary for the user device to select a matching user key needed to decrypt the master key.

65. The user device then passes the encrypted master key portion of the container file to a processor (or a decryptor, which is a special-purpose processor.)

66. The processor then determines which user key to use to decrypt the encrypted master key (the “instruct-to-enable signal”) in order to recover a decrypted master key (“a first decryption key”).

67. Once the corresponding user key has been identified, the encrypted master key can be decrypted and the master key (the “first decryption key”) is located and obtained.

68. The encrypted content (“said encrypted information”) is then decrypted based on the now decrypted master key (“said first decryption key”) and outputted for consumption by the end user.

69. Defendant makes, uses, sells, offers for sale, and imports into the United States Accused Products and Services that practice the methods claimed in at least claims 13, 15-16, 18, 20, 21, 23-24, 26, 27, and 30 of the '091 Patent. For example, on information and belief, Defendant itself uses the Accused Products and Services to practice the claimed methods for example in connection with the testing and evaluation of the Accused Products and Services. Defendant's actions constitute direct infringement of the '091 Patent in violation of 35 U.S.C. § 271(a).

70. Defendant has had knowledge of the '091 Patent resulting from PMC giving Defendant notice of and detailed information on PMC's patent portfolio including that it would cover Apple's FairPlay. Thus, based on the extensive information exchanged between PMC and Apple over a four year period, Apple has knowledge of the '091 Patent and that the normal operation of the Accused Products and Services practices the methods claimed in at least claims 13, 15-16, 18, 20, 21, 23-24, 26, 27, and 30.

71. Defendant induces infringement by providing its customers and the general public with the Accused Products and Services, and information and directions on how to use the Accused Products and Services in a manner that infringes the '091 Patent such as, for example, through user manuals, instructional videos and step-by-step instructions on how to download FairPlay-protected digital content, all of which are made available on Defendant's Support web pages.

72. Such conduct on Defendant's part intentionally encourages, urges, aids and abets, and induces its customers and the general public to commit infringing acts with the knowledge acquired from PMC, or willful blindness to the fact, that such acts infringe the methods claimed in at least claims 13, 15-16, 18, 20, 21, 23-24, 26, 27, and 30 of the '091 Patent.

73. Defendant's actions constitute inducement of infringement in violation of 35 U.S.C. § 271(b).

74. Defendant makes, offers to sell and sells within the United States, and imports into the United States the Accused Products and Services for use in connection with the practice of PMC's patented inventions. Defendant knows those Accused Products and Services to be especially made or especially adapted for practicing the methods claimed in at least claims 13, 15-16, 18, 20, 21, 23-24, 26, 27, and 30 of the '091 Patent, and those Accused Products and

Services are not staple articles or commodities of commerce suitable for substantial non-infringing uses. Defendant's actions, in providing those Accused Products and Services with the knowledge that they are especially made or adapted for practicing the claimed inventions, without substantial non-infringing uses, contribute to direct infringement by Defendant's customers who use and operate the Accused Products and Services and, thus, practice the methods claimed in at least claims 13, 15-16, 18, 20, 21, 23-24, 26, 27, and 30 of the '091 Patent. Defendant's actions constitute contributory infringement in violation of 35 U.S.C. § 271(c).

75. Defendant's acts of direct infringement, inducement of infringement, and contributory infringement have caused damage to PMC, and PMC is entitled to recover from Defendant the damages sustained by PMC as a result of Defendant's wrongful acts in an amount subject to proof at trial. Defendant's infringement of PMC's exclusive rights under the '091 Patent will continue to damage PMC's business, causing irreparable harm for which there is no adequate remedy at law, unless Defendant is enjoined by this Court.

**COUNT II**  
**INFRINGEMENT OF U.S. PATENT NO. 8,559,635**

76. Paragraphs 1-75 are incorporated by reference as if fully restated herein.

77. The normal operation of the Accused Products and Services results in the practice of the methods claimed in at least claims 3, 13, 18, 20, 32, and 33 of the '635 Patent. For example, claim 18 of the '635 Patent recites "a method of processing signals at a receiver station." The receipt and decryption of a FairPlay-protected file by an Accused Product/Service practice every step of the claimed method.

78. Defendant's iTunes, App Store, Apple Music, and QuickTime software application (installed on end users' MacOS or Windows computers) and iOS products

(including iPhone, iPod, iPad, and Apple TV) implement the method of claim 18 to decrypt digital content on end users' computing or entertainment devices.

79. The digital content may include movies, television shows, e-books, music, and/or apps. Each user device is a "receiver station" as claimed.

80. A user device can receive FairPlay-encrypted digital content either from Defendant's iTunes store and/or App Store or from another device.

81. On information and belief, a user device can also receive FairPlay-encrypted content from Defendant's iCloud.

82. Under the FairPlay DRM scheme, content delivered from Defendant's content server is encrypted with a master key which is in turn encrypted with a random user key corresponding to the user's Apple ID account.

83. Both the encrypted master key and the encrypted content are packaged in a container file.

84. The data transmission that carries the container file is "at least one encrypted digital information transmission" which, as a pure digital transmission, is "unaccompanied by any non-digital information transmission."

85. The user device, employing hardware and/or software supplied by Defendant, can recognize a FairPlay-encrypted piece of content and locate/decrypt the encrypted master key.

86. On information and belief, such location is necessary for the user device to select a matching user key needed to decrypt the master key.

87. The user key is therefore a "code" based on which a processor in the user device can control a decryptor to decrypt the encrypted digital master key portion of the container file ("a portion of said at least one information transmission").

88. Once decrypted, the master key also constitutes a “code” as claimed which is passed on to a processor in the user device to control decryption of the protected content portion of the container file (“a portion of said at least one information transmission”).

89. The decrypted content is then passed to “an output device” for consumption by the end user.

90. Defendant makes, uses, sells, offers for sale, and imports into the United States Accused Products and Services that practice the methods claimed in at least claims 3, 13, 18, 20, 32, and 33 of the ’635 Patent. For example, on information and belief, Defendant itself uses its Accused Products and Services to practice the claimed methods for example in connection with the testing and evaluation of the Accused Products and Services. Defendant’s actions constitute direct infringement of the ’635 Patent in violation of 35 U.S.C. § 271(a).

91. Upon information and belief, Defendant has knowledge of the ’635 Patent resulting from PMC giving Defendant notice of and detailed information on PMC’s patent portfolio including that it would cover Apple’s FairPlay. Thus, based on the extensive information exchanged between PMC and Apple over a four year period, Apple has knowledge of the ’635 Patent and that the normal operation of the Accused Products and Services practices the methods claimed in at least claims 3, 13, 18, 20, 32, and 33.

92. Defendant induces infringement by providing its customers and the general public with the Accused Products and Services, and information and directions on how to use the Accused Products and Services in a manner that infringes the ’635 Patent such as, for example, through user manuals, instructional videos and step-by-step instructions on how to download FairPlay-protected digital content, all of which are made available on Defendant’s Support web pages.

93. Such conduct on Defendant's part intentionally encourages, urges, aids and abets, and induces its customers and the general public to commit infringing acts with the knowledge acquired from PMC, or willful blindness to the fact, that such acts infringe the methods claimed in at least claims 3, 13, 18, 20, 32, and 33 of the '635 Patent. Defendant's actions constitute inducement of infringement in direct violation of 35 U.S.C. § 271(b).

94. Defendant makes, offers to sell and sells within the United States, and imports into the United States the Accused Products and Services for use in connection with the practice of PMC's patented inventions. Defendant knows those Accused Products and Services to be especially made or especially adapted for practicing the methods claimed in at least claims 3, 13, 18, 20, 32, and 33 of the '635 Patent, and those Accused Products and Services are not staple articles or commodities of commerce suitable for substantial non-infringing uses. Defendant's actions, in providing those Accused Products and Services with the knowledge that they are especially made or adapted for practicing the claimed inventions, without substantial non-infringing uses, contribute to direct infringement by Defendant's customers who use and operate the Accused Products and Services and, thus, practice the methods claimed in at least claims 3, 13, 18, 20, 32, and 33 of the '635 Patent. Defendant's actions constitute contributory infringement in violation of 35 U.S.C. § 271(c).

95. Defendant's acts of direct infringement, inducement of infringement, and contributory infringement have caused damage to PMC, and PMC is entitled to recover from Defendant the damages sustained by PMC as a result of Defendant's wrongful acts in an amount subject to proof at trial. Defendant's infringement of PMC's exclusive rights under the '635 Patent will continue to damage PMC's business, causing irreparable harm for which there is no adequate remedy at law, unless Defendant is enjoined by this Court.

**COUNT III**  
**INFRINGEMENT OF U.S. PATENT NO. 7,752,649**

96. Paragraphs 1-95 are incorporated by reference as if fully restated herein.

97. The normal operation of the Accused Products and Services results in the practice of the methods claimed in at least claims 39, 54, 62, and 67 of the '649 Patent.

98. For example, claim 39 of the '649 Patent recites "a method of processing signals in a television receiver." The receipt, processing, and rendering of streaming content by an Accused Product/Service, for example, pursuant to Apple's HTTP Live Streaming (HLS) protocol, practice every step of the claimed method.

99. Under the HLS protocol, content delivered from Defendant's content server is encapsulated by a MPEG-2 transport stream which is then divided into fragments of equal length for a user to download via an HTTP or HTTPS connection.

100. At the start of a streaming session, the user device receives an extended M3U playlist containing metadata for the various sub-streams containing the same media content encoded at a variety of data rates. As the stream is played, the user device can select one of the sub-streams, thereby allowing the streaming session to adapt to the available data rate.

101. On information and belief, each MPEG-2 transport stream carrying HLS content from Defendant's server(s) contain program specific information (PSI), such as a program association table (PAT) and/or at least one program map table (PMT) and/or similar indices, which instructs the receiving device how to locate relevant transport stream packets based on program numbers and/or packet identifiers (PID's).

102. Defendant's QuickTime and Safari software applications (installed on end users' MacOS or Windows computers) as well as Apple's iOS products (including iPhone, iPod, iPad,

and Apple TV) and MacOS X products implement the method of claim 39 to receive, process, and render digital content on end user Client Devices based on the HLS protocol.

103. The digital content may include, for example, movies, television shows, video clips, music, and/or radio programs.

104. A user device can receive digital content either from Defendant's iTunes Store, Apple Music, or from another device or content source.

105. On information and belief, a user device can also receive HLS-streamed content from Defendant's iCloud.

106. Each Client Device is, or is coupled to, a "television receiver" as claimed or an equivalent thereof.

107. Each Client Device is equipped with a plurality of decoders ("a plurality of processors") in order to process the MPEG-2 transport stream packets delivered based on the HLS protocol.

108. In an HLS streaming session, Defendant's content server transmits both digital content, such as television shows, and HLS sub-stream metadata and MPEG-2 PSI data over the Internet to a Client Device. This transmission of digital content and additional data form "an information transmission" as recited in claim 39.

109. Once an HLS streaming session is established, the user device receives the transmission of both content and metadata from Defendant's server(s).

110. The user device, employing hardware and/or software supplied by Defendant, can recognize the message stream and detect the HLS sub-stream metadata and/or MPEG-2 PSI data.



111. On information and belief, a main central processing unit (CPU) in the user Client Device receives at least some of the detected HLS sub-stream metadata and/or MPEG-2 PSI data. For example, the CPU is believed to be programmed to parse the PSI data and reconstruct the PAT and/or PMT tables.

112. From the PAT and/or PMT tables, the main CPU of the user device can then select the PID values corresponding to desired elementary streams such as audio and video streams of a particular television show.

113. The selected PID values are typically stored in designated registers or memory locations associated with an MPEG transport processor or demultiplexer or filter.

114. The MPEG transport processor or demultiplexer or filter processes the incoming transport stream packets by comparing their PIDs to the desired PID values for a selected television program.

115. Packets having the matching PID values are identified and that matching portion of the incoming digital television signals is inputted to MPEG audio/video decoders.

116. Typically, the audio and video elementary streams of the same digital television program are decoded simultaneously by their respective decoders.

117. The decoded audio and video content (“television programming”) is then rendered for display to the user.

118. Defendant makes, uses, sells, offers for sale, and imports into the United States Accused Products and Services that practice the methods claimed in at least claims 39, 54, 62, and 67 of the '649 Patent. For example, on information and belief, Defendant itself uses the Accused Products and Services to practice the claimed methods in connection with the operation of various servers to supply streaming media content as well as the testing and

evaluation of the Accused Products and Services. Defendant's actions constitute direct infringement of the '649 Patent in violation of 35 U.S.C. § 271(a).

119. Defendant has had knowledge of the '649 Patent resulting from PMC giving Defendant notice of and detailed information on PMC's patent portfolio including that it would cover Apple's content streaming technology. Apple had knowledge of the '649 Patent at least as early as 2011. In sum, Apple has knowledge of the '649 Patent and that the normal operation of the Accused Products and Services practices the methods claimed in at least claims 39, 54, 62, and 67.

120. Defendant induces infringement by providing its customers and the general public with the Accused Products and Services, and information and directions on how to use the Accused Products and Services in a manner that infringes the '649 Patent such as, for example, through user manuals, instructional videos and step-by-step instructions on how to stream or download digital content based on Apple's HLS protocol, all of which are made available on Defendant's Support web pages.

121. Such conduct on Defendant's part intentionally encourages, urges, aids and abets, and induces its customers and the general public to commit infringing acts with the knowledge acquired from PMC, or willful blindness to the fact, that such acts infringe the methods claimed in at least claims 39, 54, 62, and 67 of the '649 Patent.

122. Defendant's actions constitute inducement of infringement in violation of 35 U.S.C. § 271(b).

123. Defendant makes, offers to sell and sells within the United States, and imports into the United States the Accused Products and Services for use in connection with the practice of PMC's patented inventions. Defendant knows those Accused Products and Services to be

especially made or especially adapted for practicing the methods claimed in at least claims 39, 54, 62, and 67 of the '649 Patent, and those Accused Products and Services are not staple articles or commodities of commerce suitable for substantial non-infringing uses. Defendant's actions, in providing those Accused Products and Services with the knowledge that they are especially made or adapted for practicing the claimed inventions, without substantial non-infringing uses, contribute to direct infringement by Defendant's customers who use and operate the Accused Products and Services and, thus, practice the methods claimed in at least claims 39, 54, 62, and 67 of the '649 Patent. Defendant's actions constitute contributory infringement in violation of 35 U.S.C. § 271(c).

124. Defendant's acts of direct infringement, inducement of infringement, and contributory infringement have caused damage to PMC, and PMC is entitled to recover from Defendant the damages sustained by PMC as a result of Defendant's wrongful acts in an amount subject to proof at trial. Defendant's infringement of PMC's exclusive rights under the '649 Patent will continue to damage PMC's business, causing irreparable harm for which there is no adequate remedy at law, unless Defendant is enjoined by this Court.

**COUNT IV**  
**INFRINGEMENT OF U.S. PATENT NO. 8,752,088**

125. Paragraphs 1-124 are incorporated by reference as if fully restated herein.

126. The normal operation of the Accused Products and Services results in infringement of at least claim 14 of the '088 Patent.

127. Claim 14 of the '088 Patent recites "a multimedia receiving apparatus for gathering information on use of signals." Each of Defendant's iOS products (including iPhone, iPod, iPad, and Apple TV) and MacOS X products is "a multimedia receiving apparatus" which

infringes claim 14 by receiving and processing digital content, for example, based on Apple's HTTP Live Streaming (HLS) protocol.

128. Each of Apple's Client Devices includes at least two different input ports ("a plurality of input ports") for receiving digital content such as movies, television shows, e-books, audio books, music, and/or apps ("multimedia signals"). For example, it is believed that a user device employs two different input ports for HTTP and HTTPS connections with Defendant's servers.

129. On information and belief, a user device can also receive multimedia content from Defendant's iCloud.

130. On information and belief, each user device is equipped with at least one MPEG transport processor to parse or filter the incoming MPEG transport stream packets and the selected packets are outputted via an "output port."

131. The MPEG transport processor in the user device is operatively connected to both the input ports and the output ports.

132. Typically, a main CPU in the user device can program the MPEG transport processor with desirable PID values so that the MPEG transport processor can identify matching packets ("signals") from the incoming transport stream.

133. The identified packets are passed by the MPEG transport processor to the output port and forwarded on to other components in the user device. To which component an identified packet is passed depends on the packet type and/or the type of content it carries. For example, an audio elementary stream packet is passed from the output port to an MPEG audio decoder, whereas a video elementary stream packet is passed from the output port to an MPEG video decoder. In some cases, such packets are passed to a decryptor for decryption before or

after MPEG decoding. Upon information and belief, in at least some cases there are multiple decryptors for decrypting different types of packets using different decryption keys and even different decryption algorithms.

134. On information and belief, at least the aggregate use of the identified signals, such as the consumption of a movie or television show, is recorded by the user device and communicated to an internal or external destination. On information and belief, the use of specific identified signals is recorded in some instances in order to report where a movie or television show has been paused or stopped and/or how access control and decryption has been carried out in a manner that comports with, or violates, Apple's access control policies.

135. Defendant makes, uses, sells, offers for sale, and imports into the United States Accused Products and Services that practice the methods claimed in at least claim 14 of the '088 Patent. For example, on information and belief, Defendant itself uses the Accused Products and Services including the claimed apparatus for example in connection with the testing and evaluation of the Accused Products and Services. Defendant's actions constitute direct infringement of the '088 Patent in violation of 35 U.S.C. § 271(a).

136. Defendant has had knowledge of the '088 Patent resulting from PMC giving Defendant notice of and detailed information on PMC's patent portfolio including that it would cover Apple's content streaming technologies. Thus, based on the extensive information exchanged between PMC and Apple over a four year period, Apple has knowledge of the '088 Patent and that the normal operation of the Accused Products and Services infringes at least claim 14.

137. Defendant induces infringement by providing its customers and the general public with the Accused Products and Services, and information and directions on how to use the

Accused Products and Services in a manner that infringes the '088 Patent such as, for example, through user manuals, instructional videos and step-by-step instructions on how to stream or download digital content based on Apple's HLS protocol, all of which are made available on Defendant's Support web pages.

138. Such conduct on Defendant's part intentionally encourages, urges, aids and abets, and induces its customers and the general public to commit infringing acts with the knowledge acquired from PMC, or willful blindness to the fact, that such acts infringe at least claim 14 of the '088 Patent.

139. Defendant's actions constitute inducement of infringement in violation of 35 U.S.C. § 271(b).

140. Defendant makes, offers to sell and sells within the United States, and imports into the United States the Accused Products and Services for use in connection with the practice of PMC's patented inventions. Defendant knows those Accused Products and Services to be especially made or especially adapted for practicing the invention claimed in at least claim 14 of the '088 Patent, and those Accused Products and Services are not staple articles or commodities of commerce suitable for substantial non-infringing uses. Defendant's actions, in providing those Accused Products and Services with the knowledge that they are especially made or adapted for practicing the claimed inventions, without substantial non-infringing uses, contribute to direct infringement by Defendant's customers who use and operate the Accused Products and Services and, thus, practice the invention claimed in at least claim 14 of the '088 Patent. Defendant's actions constitute contributory infringement in violation of 35 U.S.C. § 271(c).

141. Defendant's acts of direct infringement, inducement of infringement, and contributory infringement have caused damage to PMC, and PMC is entitled to recover from Defendant the damages sustained by PMC as a result of Defendant's wrongful acts in an amount subject to proof at trial. Defendant's infringement of PMC's exclusive rights under the '088 Patent will continue to damage PMC's business, causing irreparable harm for which there is no adequate remedy at law, unless Defendant is enjoined by this Court.

### **PRAYER FOR RELIEF**

WHEREFORE, PMC prays for judgment as follows:

A. That this Court adjudge and decree that the Defendant has infringed, directly and indirectly, the '091 Patent, the '635 Patent, the '649 Patent, and the '088 Patent;

B. That this Court permanently enjoin Defendant and its subsidiaries, affiliates, successors and assigns, and each of their officers, directors, agents, servants, employees, attorneys, licensees, and all persons acting in concert or active participation with them, or on their behalf, or within their control, from engaging in any acts that constitute direct infringement, inducement of infringement, or contributory infringement of the patents-in-suit;

D. That this Court order an accounting, including a post-verdict accounting, to determine the damages to be awarded to PMC as a result of Defendant's infringement;

E. That this Court, pursuant to 35 U.S.C. § 284, enter an award to PMC of such damages as it shall prove at trial against Defendant that are adequate to compensate PMC for said infringement, such damages to be no less than a reasonable royalty together with interest and costs;

F. That this Court assess pre-judgment and post-judgment interest and costs,

together with an award of such interest and costs, in accordance with 35 U.S.C. § 284;

G. That this Court declare this case to be exceptional and direct Defendant to pay PMC its attorney's fees for this action, including those pursuant to 35 U.S.C. § 285; and

H. That PMC be awarded such further relief as this Court may deem just and appropriate.

**DEMAND FOR JURY TRIAL**

PMC demands a trial by jury of all matters to which it is entitled to trial by jury pursuant to Federal Rule of Civil Procedure 38.

Respectfully submitted,

October 14, 2015

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ATTORNEYS FOR PLAINTIFF



**CERTIFICATE OF SERVICE**

I hereby certify that all counsel of record who are deemed to have consented to electronic service are being served this 14<sup>th</sup> day of October, 2015, with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3). Any other counsel of record will be served by electronic mail, facsimile transmission and/or first class mail on this same date.

/s/ S. Calvin Capshaw  
S. Calvin Capshaw